Notice of Allowability	Application No.	Applicant(s)	
	09/336,530	YEO, BOON-LOCK	
	Examiner	Art Unit	
	Christopher Onuaku	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *the Appeal Brief filed 8/15/05*.

2. ☒ The allowed claim(s) is/are *1-38*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

DETAILED ACTION

Allowable Subject Matter

1. Claims 1-38 are allowable over the prior art of record.

2. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 1, the invention relates to systems and methods for random access and backward playback of video frames.

The closest references Toebes VIII et al (US 5,959,690) disclose a system and techniques for altering and decompressing digital motion video signals in a manner which allows efficient reverse play of the motion video as well as efficient frame-level access and play of the motion video stream for creation of other special video effects, and Proctor et al (US 6,072,830) teach method and apparatus of encoding and decoding digitized video signals.

However, Toebes VIII et al and Proctor et al fail to explicitly disclose a method of processing a video stream where the method further comprises determining based at least in part on the list of frame dependencies whether a decoded version of the particular frame is in a decoded frame cache, the cache configured to store an arbitrary number of previously decoded frames, and if it is not and if the particular frame has a frame dependency, determining a frame dependency for the particular frame, determining which of the frames in the frame dependency are in the decoded frame

cache, decoding any frame in the frame dependency that is not in the decoded frame cache and placing it in the decoded frame cache.

Regarding claim 15, the invention relates to systems and methods for random access and backward playback of video frames.

The closest references Toebes VIII et al (US 5,959,690) disclose a system and techniques for altering and decompressing digital motion video signals in a manner which allows efficient reverse play of the motion video as well as efficient frame-level access and play of the motion video stream for creation of other special video effects, and Proctor et al (US 6,072,830) teach method and apparatus of encoding and decoding digitized video signals.

However, Toebes VIII et al and Proctor et al fail to explicitly disclose an article where the article further comprises a computer readable medium having instructions thereon which when executed cause a computer to further to determine based at least in part on the list of frame dependencies whether a decoded version of the particular frame is in a decoded frame cache, the cache configured to store an arbitrary number of previously decoded frames, and if it is not and if the particular frame has a frame dependency, determine a frame dependency for the particular frame, determine which of the frames in the frame dependency are in the decoded frame cache, decode any frame in the frame dependency that is not in the decoded frame cache and place it in the decoded frame cache.

Regarding claim 26, the invention relates to systems and methods for random access and backward playback of video frames.

The closest references Toebes VIII et al (US 5,959,690) disclose a system and techniques for altering and decompressing digital motion video signals in a manner which allows efficient reverse play of the motion video as well as efficient frame-level access and play of the motion video stream for creation of other special video effects, and Proctor et al (US 6,072,830) teach method and apparatus of encoding and decoding digitized video signals.

However, Toebes VIII et al and Proctor et al fail to explicitly disclose a computer system where the computer system includes memory including instructions which when executed cause the processor and video processing circuitry to further determine whether a decoded version of the particular frame is in a decoded frame cache, the cache configured to store an arbitrary number of previously decoded frames, and if it is not and if the particular frame has a frame dependency, determine a frame dependency for the particular frame, determine which of the frames in the frame dependency are in the decoded frame cache, decode any frame in the frame dependency that is not in the decoded frame cache and place it in the decoded frame cache.

Regarding claim 27, the invention relates to systems and methods for random access and backward playback of video frames.

The closest references Toebes VIII et al (US 5,959,690) disclose a system and techniques for altering and decompressing digital motion video signals in a manner

which allows efficient reverse play of the motion video as well as efficient frame-level access and play of the motion video stream for creation of other special video effects, and Proctor et al (US 6,072,830) teach method and apparatus of encoding and decoding digitized video signals.

However, Toebes VIII et al and Proctor et al fail to explicitly disclose a method for randomly accessing a first frame of a video stream, where the method further comprises determining a decoding of the first frame is not in a decoded frame cache, the cache configured to store an arbitrary number of previously decoded frames, determining based at least in part on the list of frame dependencies, a first frame dependency for the first frame comprising frames required to decode the first frame, decoding at least one of the frames of the frame dependency not present in the decoded frame cache, and placing it in the decoded frame cache.

Regarding claim 33, the invention relates to systems and methods for random access and backward playback of video frames.

The closest references Toebes VIII et al (US 5,959,690) disclose a system and techniques for altering and decompressing digital motion video signals in a manner which allows efficient reverse play of the motion video as well as efficient frame-level access and play of the motion video stream for creation of other special video effects, and Proctor et al (US 6,072,830) teach method and apparatus of encoding and decoding digitized video signals.

However, Toebes VIII et al and Proctor et al fail to explicitly disclose an article comprising a machine-accessible media having associated data for randomly accessing a first frame of a video stream, wherein the data, when accessed, further results in a machine determining a decoding of the first frame is not in a decoded frame cache, the cache configured to store an arbitrary number of previously decoded frames, determining, based at least in part on the list of frame dependencies, a first frame dependency for the first frame comprising frames required to decode the first frame, decoding at least one of the frames of the frame dependency not present in the decoded frame cache, and placing it in the decoded frame cache.

Regarding claim 37, the invention relates to systems and methods for random access and backward playback of video frames.

The closest references Toebes VIII et al (US 5,959,690) disclose a system and techniques for altering and decompressing digital motion video signals in a manner which allows efficient reverse play of the motion video as well as efficient frame-level access and play of the motion video stream for creation of other special video effects, and Proctor et al (US 6,072,830) teach method and apparatus of encoding and decoding digitized video signals.

However, Toebes VIII et al and Proctor et al fail to explicitly disclose a method of caching decoded frames of a video in a decoded frame cache configured to store an arbitrary number of previously decoded frames, where the method further determining based at least in part on the list of frame dependencies that a decoded version of the

particular frame not is in a decoded frame cache, determining if the particular frame has a frame dependency, and if so, determining a frame dependency for the particular frame, determining which of the frames in the frame dependency are in the decoded frame cache, decoding any frame in the frame dependency that is not in the decoded frame cache and placing it in the decoded frame cache.

Conclusion

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher Onuaku whose telephone number is 571-272-7379. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Groody can be reached on 571-272-7950. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

COO
3/2/06

James J. Groody
Supervisory Patent Examiner
Art Unit ~~262~~ 2616